

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
9 October 2003 (09.10.2003)

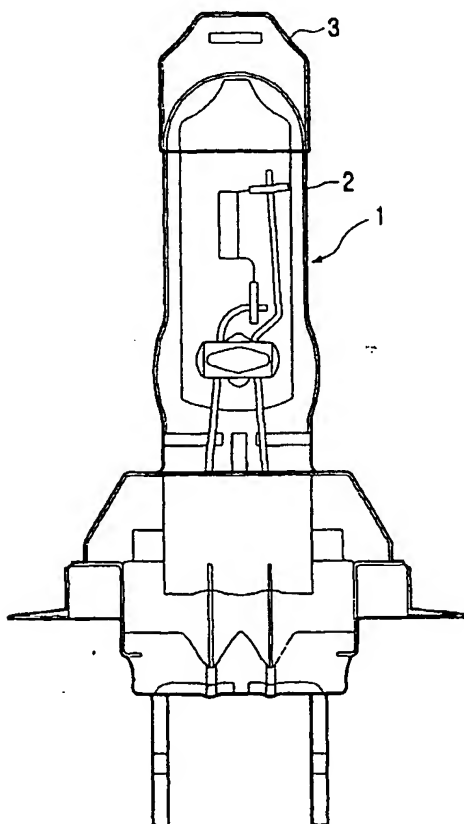
PCT

(10) International Publication Number
WO 03/083900 A1

- (51) International Patent Classification⁷: **H01K 1/26**, F21V 17/04
- (21) International Application Number: PCT/IB03/01123
- (22) International Filing Date: 24 March 2003 (24.03.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
102 13 911.3 28 March 2002 (28.03.2002) DE
- (71) Applicant (for DE only): **PHILIPS INTELLECTUAL PROPERTY & STANDARDS GMBH** [DE/DE]; Stein-
damm 94, 20099 Hamburg (DE).
- (71) Applicant (for all designated States except DE, US): **KONINKLIJKE PHILIPS ELECTRONICS N.V.** [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): **GERVELMEYER, Rolf** [DE/DE]; c/o Philips Intellectual Property & Standards GmbH, Weissshausstr. 2, 52066 Aachen (DE).
- (74) Agent: **VOLMER, Georg**; Philips Intellectual Property & Standards GmbH, Weissshausstr. 2, 52066 Aachen (DE).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,

[Continued on next page]

(54) Title: **HALOGEN HEADLIGHT LAMP FOR AN AUTOMOBILE**



(57) Abstract: The invention relates to a halogen headlight lamp for an automobile comprising at least a lamp bulb (2) and an antiglare screen (3) which is indetachably fastened to the end of the lamp bulb facing the road in the mounted position of the lamp, wherein the antiglare screen (3) is formed by a cup-shaped component which has substantially received its final shape already at the moment of its fastening to the lamp bulb (2).

WO 03/083900 A1



ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,
SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM,
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

— before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

Halogen headlight lamp for an automobile

The invention relates to a halogen headlight lamp for an automobile comprising at least a lamp bulb and an antiglare screen which is indetachably fastened to the end of the lamp bulb facing the road in the mounted position of the lamp.

Halogen headlight lamps for automobiles are provided with opaque screens
5 because of legal requirements stipulating that a direct irradiation of oncoming traffic by the light issuing from the halogen headlight lamp must be prevented. The relevant antiglare screen has been realized for decades by means of a usually single-layer or multiple-layer coat of paint which is provided in a dipping process on that end of the lamp bulb which faces the road, and accordingly the oncoming traffic, in the mounted position of the lamp, followed by
10 a burning-in of the coat of paint on the lamp bulb. A constant antiglare screen in the sense indicated above, which is guaranteed to be permanent throughout the life of the halogen headlight lamp, has only been possible until now with great effort and high expenditure in the case of lamps manufactured in a mass manufacturing process, in spite of major efforts by the industry, and has accordingly been in the focus of the development efforts of all relevant
15 lamp manufacturers involved for years. Depending on the manufacturer and/or on the respective loads, for example strong impact loads or thermal loads, an at least partial damage of the paint coat cannot be fully excluded. Cracks or even a partial flaking-off of portions of the paint coat can jeopardize the required permanence of an antiglare screen.

For certain lamp types or applications, there is a demand in the automobile
20 industry for the technical element which until now only had to realize the antiglare protection to fulfill further additional functions. Such new functions may be in the field of novel design possibilities, or may serve to provide carriers of technical and/or user-specific information.

The present-day headlight design involves a danger, at least for certain forms of headlights, that the antiglare screen mentioned above is not sufficient on its own for
25 fulfilling the requirements. For this reason some manufacturers use so-termed cups which are additionally placed or mounted in front of the lamp. Such a solution is described, for example, in US 5,975,731, wherein the light hindering the oncoming traffic is eliminated by a reflecting component which is mechanically fastened to the headlight in front of the lamp by means of two strips. Such a fastening by means of a strip has the disadvantage that the latter

inevitably causes a partial shadow effect, the elimination of which again requires an additional expenditure.

It is an object of the invention to provide a halogen headlight lamp and an antiglare screen for such a halogen headlight lamp whereby it is safeguarded that the required impermeability to light is ensured throughout the life of the halogen headlight lamp, while the latter can be manufactured in a technically simple and inexpensive manner.

The object of the invention is achieved in that the antiglare screen is formed by a cup-shaped component which has received substantially its final shape already at the moment of its fastening to the lamp bulb.

The cup-shaped component may thus be readily adapted with its inner contour to the shape of the lamp bulb and the relevant kind of fastening. The shape and design of the outer contour of the antiglare screen may be implemented in a plurality of manners. Depending on the intended application of the lamp, for example in a certain type of vehicle from a certain automobile manufacturer, this opens up the possibility of incorporating the lamp into the overall relevant design concept of the vehicle, or at least of adapting it thereto. For example, the coloring of the antiglare screen may be harmonized with the color of the car body or the logo or symbol of the automobile manufacturer may be integrated in a high-grade manner.

The function of the component which primarily serves to ensure the antiglare protection may be extended in that it is used in particular as a carrier of information and data, so that it can be basically included in the vehicle management, should this be desired.

Partial shadow effects are avoided by the stepless nature of the fastening. The solution according to the invention renders it possible in principle to achieve an improvement in the antiglare protection, given a suitable shaping of the cup-shaped component itself or a fastening of an additional cup to the cup-shaped component.

The solution according to the invention in addition renders it possible to manufacture the antiglare screen separately, possibly beforehand, so that it can be connected to the lamp bulb by suitable means in a technological step. Here, too, a plurality of possibilities is available for the concrete choice of the type of fastening, so that the simplest and least expensive fastening type may be chosen, for example taking into account all aspects of the manufacture and the relevant operational parameters.

It is preferred in this connection that the fastening between the cup-shaped component and the lamp bulb is achieved by means of a connection based on material properties, exertion of force, and/or interlocking arrangements.

It is furthermore preferred, in particular for achieving a simple and inexpensive manufacture of the halogen headlight lamp, that the interconnection can be achieved by mechanical fastening means such as snap mechanisms or screw threads and/or by adhesion. Known adhesives may be used as the adhesives for the manufacture of the reliable connection, which adhesives should be in particular resistant to high temperatures and attuned to the chosen material combination and to the loads exerted during lamp life. For a material combination of metal and glass, or ceramic material and glass, for example, a commercially available so-termed high-temperature ceramic adhesive is suitable, comprising in particular metal and/or ceramic refractive materials. These adhesives, which are often in the form of pastes, form high-temperature-resistant adhesive joints upon curing. Examples that may be mentioned are a high-temperature adhesive on aluminum basis with the commercial designation Polytec 950 and a high-temperature adhesive on steel basis with the commercial designation Polytec 954. The latter adhesive is resistant up to approximately 870 °C.

Preferred materials for the cup-shaped opaque component are metal, ceramic material, high-temperature synthetic resin, and/or glass. The choice of the respective material is determined fundamentally by the envisaged manufacture, the application of the lamp, and the desired functions.

A particular embodiment of the invention relates to the fact that visually and/or technically readable data and/or information can be stored on and/or in the outer surface of the opaque cup-shaped component. The functionality of the opaque antiglare screen is enhanced thereby, i.e. an additional user advantage is immediately obtained by this arrangement.

The object of the invention is additionally achieved by means of an antiglare screen of a halogen headlight lamp with a lamp bulb, wherein the opaque antiglare screen is a cup-shaped component which has received substantially its final shape at the moment of its fastening to the lamp bulb.

The terms "cup" and "cup-shaped" within the scope of the invention relate in particular to the shape of a hollow cylinder which is closed at one end; however, similar geometric shapes are not excluded thereby.

The invention will be explained in more detail below with reference to an embodiment. In the drawing:

Fig. 1 is a diagrammatic cross-sectional view of a halogen headlight lamp with an opaque antiglare screen,

Fig. 2 is a diagrammatic cross-sectional view of a snap fastening between a lamp bulb of a halogen headlight lamp and an opaque antiglare screen, and

Fig. 3 is a diagrammatic cross-sectional view of a snap-adhesive fastening between a lamp bulb of a halogen headlight lamp and an opaque antiglare screen.

Fig. 1 is a diagrammatic cross-sectional view of a halogen headlight lamp 1 according to the invention with an opaque antiglare screen 3. The antiglare screen 3, which is undetachably fastened to that end of the lamp bulb 2 which faces the road in the mounted state of the lamp, consists of a cup-shaped component. This component is a steel or aluminum stamped part which has already received substantially its final shape at the moment of its fastening to the lamp bulb 2.

Fig. 2 shows a portion of a cylindrical region of a lamp bulb 2 of a halogen headlight lamp for an automobile and a cylindrical portion of an opaque antiglare screen 3 in a diagrammatic cross-sectional view. The region of the glass bulb shown has a lenticular projection 4 at its outer surface which snaps into a recess 5 of corresponding size and shape provided in the inner side of the antiglare screen. The antiglare screen formed as a cup-shaped component is preferably of a resilient construction in the region of its recess, so that an interlocking, resilient interconnection, a so-called snap connection, is obtained. There is some clearance between the cylindrical inner side of the antiglare screen and the outer surface of the lamp bulb 2. This clearance renders it possible inter alia to mount the antiglare screen 3 to the end of the lamp bulb 2 facing the road in a simple and reliable manner.

Fig. 3 shows a portion of a cylindrical region of a lamp bulb 2 of a halogen headlight lamp for an automobile. The region of the glass bulb shown has a recess 6 in its outer surface, into which recess a projection 7 of corresponding size and shape arranged at the inner side of the antiglare screen is snapped in. In addition to this so-called snap connection between the recess 6 and the projection 7, the strength and reliability of the connection may be enhanced by the use of an adhesive, so that a snap-adhesive joint is obtained. Several such connections may be distributed over the circumference. Alternative shapes are possible in principle for the shape of the mutually mating projection 7 and recess 6.

CLAIMS

1. A halogen headlight lamp for an automobile comprising at least a lamp bulb (2) and an antiglare screen (3) which is indetachably fastened to the end of the lamp bulb facing the road in the mounted position of the lamp, characterized in that the opaque antiglare screen (3) is formed by a cup-shaped component which has received substantially its final shape already at the moment of its fastening to the lamp bulb (2).
5
2. A halogen headlight lamp as claimed in claim 1, characterized in that the fastening between the cup-shaped component and the lamp bulb (2) is achieved by means of a connection based on material properties, exertion of force, and/or interlocking
10 arrangements.
3. A halogen headlight lamp as claimed in claim 2, characterized in that the interconnection is achieved by mechanical fastening means such as snap mechanisms or screw threads, and/or by adhesion.
15
4. A halogen headlight lamp as claimed in claim 1, characterized in that the cup-shaped component consists of metal, ceramic material, synthetic resin resistant to high temperatures, and/or glass.
- 20 5. A halogen headlight lamp as claimed in claim 1, characterized in that visually and/or technically readable data and/or information can be stored on and/or in the outer surface of the opaque cup-shaped component.
6. An antiglare screen for a halogen headlight lamp comprising a lamp bulb,
25 characterized in that the opaque antiglare screen (3) is a cup-shaped component which has received substantially its final shape at the moment of its fastening to the lamp bulb (2).

7. A lighting unit comprising a halogen headlight lamp for an automobile as claimed in one of the preceding claims 1 to 5.

1/2

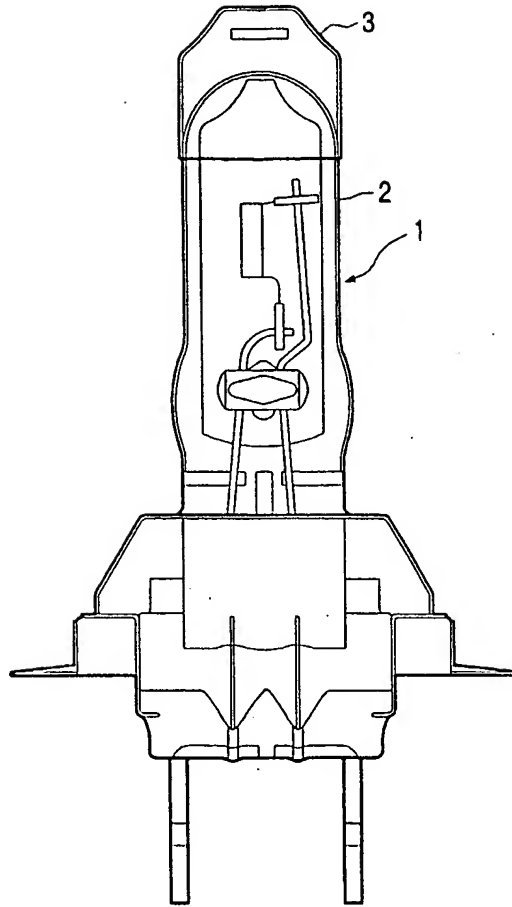


FIG. 1

2/2

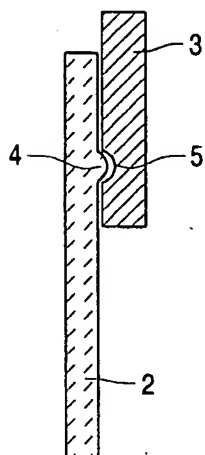


FIG. 2

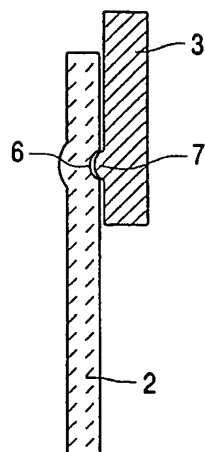


FIG. 3

INTERNATIONAL SEARCH REPORT

PCT/IB 03/01123

A. CLASSIFICATION OF SUBJECT MATTER
 IPC 7 H01K1/26 F21V17/04

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
 IPC 7 H01K F21V F21M H01J

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	FR 2 549 577 A (ROSSI) 25 January 1985 (1985-01-25) page 2, line 1 - line 2 page 2, line 22 - line 24	1,2,4,6
Y	figures 1,3-5,8,8	3,5
Y	FR 2 416 550 A (FNAC) 31 August 1979 (1979-08-31) page 1, line 1 - line 22 page 3, line 4 - line 12 claims 1,2,4,5; figures 1-4	3
A		1,2,4-6
Y	DE 298 09 764 U (JUNGSBERGER NICOLA ELISABETH D) 29 April 1999 (1999-04-29) page 8, line 20 - line 22 figures 1,2	5
A		1
	--- -/-	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *Z* document member of the same patent family

Date of the actual completion of the international search

3 June 2003

Date of mailing of the international search report

08 SEP 2003

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
 NL - 2280 HV Rijswijk
 Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
 Fax: (+31-70) 340-3016

Authorized officer

De Mas, A

BEST AVAILABLE COPY

INTERNATIONAL SEARCH REPORT

PCT/IB 03/01123

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 3 757 105 A (ELECTRIC LIGHT DEVICE ET AL) 4 September 1973 (1973-09-04) column 3, line 42 - line 52 figure 11 ---	1,3,6
A	US 2001/004319 A1 (HEMMI HITOSHI ET AL) 21 June 2001 (2001-06-21) column 2, paragraphs 38,40; figures 1A,1B ---	1,6
A	US 5 180 224 A (SVEHAUG OSWALD C) 19 January 1993 (1993-01-19) column 2, line 42 -column 3, line 2 column 3, line 23 - line 64 figures 1-12 -----	1,6

BEST AVAILABLE COPY

INTERNATIONAL SEARCH REPORT

Information on patent family members

PCT/IB 03/01123

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
FR 2549577	A	25-01-1985	FR 2549577 A1	25-01-1985
FR 2416550	A	31-08-1979	FR 2416550 A1	31-08-1979
DE 29809764	U	29-04-1999	DE 29809764 U1	29-04-1999
US 3757105	A	04-09-1973	US 3808419 A	30-04-1974
US 2001004319	A1	21-06-2001	JP 2001176450 A	29-06-2001
US 5180224	A	19-01-1993	NONE	

Form PCT/ISA/210 (patent family annex) (July 1992)